

CLAIMS

I claim:

1. An offset-difference coding process for encoding data in an input data stream comprising the steps of:

receiving one or more paired input data;

wherein for each of the one or more paired input data, the encoding process comprises:

determining the greater of the two input data;

calculating the difference between said two input data;

replacing the larger input data with said calculated difference; and

encoding the calculated difference and the smaller input data.

2. The offset-difference coding process of claim 1 further comprising a decoding process for decoding encoded data in an input data stream, the decoding process comprising the steps of:

detecting whether the indicator exists;

decoding the encoded data in response to the step of detecting whether the indicator exists.

3. The offset-difference coding process of claim 2, wherein decoding the encoded data further comprises:

wherein if the indicator is detected, then the decoding process further comprises:

decoding the encoded data with variable-length coding to recover the calculated difference;

decoding the next encoded data with a preselected decoding scheme to recover the original data; and

adding the two decoded data to restore the replaced original data; and

wherein if the indicator is not detected, then the decoding process further comprises:

decoding the encoded data with variable-length coding to recover the original data;

decoding the next encoded data with a preselected decoding scheme to recover the calculated difference; and

adding the two decoded data to restore the replaced original data.

4. The offset-difference coding process of claim 1 wherein the step of encoding the calculated difference and the smaller input data further comprises:

wherein if the larger input data is statistically larger than the smaller input data, then the encoding process further comprises:

encoding the smaller input data with variable-length coding;

encoding the calculated difference with a preselected coding scheme; and

generating output data beginning with the encoded smaller input data, followed by the encoded calculated difference; and

wherein if the larger input data is not statistically larger than the smaller input data, then the encoding process further comprises:

encoding the calculated difference with variable-length coding;

encoding the smaller input data with a preselected coding scheme;

generating an indicator; and

generating output data beginning with the generated indicator, followed by the encoded calculated difference and the encoded smaller input data.

5. The offset-difference coding process of claim 4 further comprising a decoding process for decoding encoded data in an input data stream, the decoding process comprising the steps of:

detecting whether the indicator exists;

decoding the encoded data in response to the step of detecting whether the indicator exists.

6. The offset-difference coding process of claim 5, wherein decoding the encoded data further comprises:

wherein if the indicator is detected, then the decoding process further comprises:

decoding the encoded data with variable-length coding to recover the calculated difference;

decoding the next encoded data with a preselected decoding scheme to recover the original data; and

adding the two decoded data to restore the replaced original data; and

wherein if the indicator is not detected, then the decoding process further comprises:

decoding the encoded data with variable-length coding to recover the original data;

decoding the next encoded data with a preselected decoding scheme to recover the calculated difference; and

adding the two decoded data to restore the replaced original data.

7. A composite offset-difference coding process for encoding data in an input data stream comprising the steps of:

receiving one or more paired input data;

wherein for each of the one or more paired input data, the encoding process comprises:

determining the greater of the two input data;

wherein if the larger input data is statistically larger than the smaller input data, then comparing said calculated difference with a predetermined first threshold and encoding the input data in response to whether said calculated difference exceeds said predetermined first threshold; and

wherein if the larger input data is not statistically larger than the smaller input data, then comparing said calculated difference with a predetermined second threshold and encoding the input data in response to whether said calculated difference exceeds said predetermined second threshold.

8. The composite offset-difference coding process of claim 7 further comprising a decoding process for decoding encoded data in an input data stream, the decoding process comprising the steps of:

detecting whether the identifier exists; and

decoding the encoded data in response to the step of detecting whether the identifier exists.

9. The composite offset-difference coding process of claim 8, wherein decoding the encoded data further comprises:

wherein if the identifier is detected, then the decoding process further comprises:

detecting whether the indicator exists; and

decoding the encoded data in response to the step of detecting whether the indicator exists; and

wherein if the identifier is not detected, then the decoding process further comprises:

decoding the encoded data with variable-length coding to recover the original data; and

decoding the next encoded data with a preselected decoding scheme to recover the original data.

10. The composite offset-difference coding process of claim 9, wherein decoding the encoded data in response to the step of detecting whether the indicator exists further comprises:

wherein if the indicator is detected, then the decoding process further comprising the steps of:

decoding the encoded data with variable-length coding to recover the calculated difference;

decoding the next encoded data with a preselected decoding scheme to recover the original data; and

adding the two decoded data to restore the replaced original data.

wherein if the indicator is not detected, then the decoding process further comprising the steps of:

decoding the encoded data with variable-length coding to recover the original data;

decoding the next encoded data with a preselected decoding scheme to recover the calculated difference; and

adding the two decoded data to restore the replaced original data.

11. The composite offset-difference coding process of claim 7 wherein encoding the input data in response to whether said calculated difference exceeds said predetermined first threshold further comprises:

wherein if the calculated difference exceeds the predetermined first threshold, then the encoding process further comprises:

encoding the larger input data with a preselected coding scheme;

encoding the smaller input data with variable-length coding; and

generating output data beginning with the encoded smaller input data, followed by the encoded larger input data.

wherein if the calculated difference not exceed the predetermined first threshold, then the encoding process further comprises:

- replacing the larger input data with the calculated difference;
- encoding the calculated difference with a preselected coding scheme;
- generating an identifier;
- encoding the smaller input data with variable-length coding; and
- generating output data beginning with the identifier, followed by the encoded smaller input data and the encoded calculated difference.

12. The composite offset-difference coding process of claim 11 further comprising a decoding process for decoding encoded data in an input data stream, the decoding process comprising the steps of:

- detecting whether the identifier exists; and
- decoding the encoded data in response to the step of detecting whether the identifier exists.

13. The composite offset-difference coding process of claim 12, wherein decoding the encoded data further comprises:

wherein if the identifier is detected, then the decoding process further comprises:

- detecting whether the indicator exists; and
- decoding the encoded data in response to the step of detecting whether the indicator exists; and

wherein if the identifier is not detected, then the decoding process further comprises:

- decoding the encoded data with variable-length coding to recover the original data; and
- decoding the next encoded data with a preselected decoding scheme to recover the original data.

14. The composite offset-difference coding process of claim 13, wherein decoding the encoded data in response to the step of detecting whether the indicator exists further comprises:

wherein if the indicator is detected, then the decoding process further comprising the steps of:

decoding the encoded data with variable-length coding to recover the calculated difference;
decoding the next encoded data with a preselected decoding scheme to recover the original data; and
adding the two decoded data to restore the replaced original data.

wherein if the indicator is not detected, then the decoding process further comprising the steps of:

decoding the encoded data with variable-length coding to recover the original data;
decoding the next encoded data with a preselected decoding scheme to recover the calculated difference; and
adding the two decoded data to restore the replaced original data.

15. The composite offset-difference coding process of claim 7 wherein encoding the input data in response to whether said calculated difference exceeds said predetermined second threshold further comprises:

wherein if the calculated difference exceeds the predetermined second threshold, then the encoding process further comprises:
encoding the smaller input data with a preselected coding scheme;
encoding the larger input data with variable-length coding; and
generating output data beginning with the encoded larger input data, followed by the encoded smaller input data.

wherein if the calculated difference not exceed the predetermined second threshold, then the encoding process further comprises:
replacing the larger input data with the calculated difference;
encoding the calculated difference with variable-length coding;
encoding the smaller input data with a preselected coding scheme;
generating an identifier;
generating an indicator;
generating output data beginning with the identifier, followed by the indicator, the encoded calculated difference, and the encoded smaller input data.

16. The composite offset-difference coding process of claim **15** further comprising a decoding process for decoding encoded data in an input data stream, the decoding process comprising the steps of:

detecting whether the identifier exists; and

decoding the encoded data in response to the step of detecting whether the identifier exists.

17. The composite offset-difference coding process of claim **16**, wherein decoding the encoded data further comprises:

wherein if the identifier is detected, then the decoding process further comprises:

detecting whether the indicator exists; and

decoding the encoded data in response to the step of detecting whether the indicator exists; and

wherein if the identifier is not detected, then the decoding process further comprises:

decoding the encoded data with variable-length coding to recover the original data; and

decoding the next encoded data with a preselected decoding scheme to recover the original data.

18. The composite offset-difference coding process of claim **17**, wherein decoding the encoded data in response to the step of detecting whether the indicator exists further comprises:

wherein if the indicator is detected, then the decoding process further comprising the steps of:

decoding the encoded data with variable-length coding to recover the calculated difference;

decoding the next encoded data with a preselected decoding scheme to recover the original data; and

adding the two decoded data to restore the replaced original data.

wherein if the indicator is not detected, then the decoding process further comprising the steps of:

decoding the encoded data with variable-length coding to recover the original data;

decoding the next encoded data with a preselected decoding scheme to recover the
calculated difference; and

adding the two decoded data to restore the replaced original data.

19. The composite offset-difference coding process of claim 7 further comprising means for calculating the predetermined first threshold.
20. The composite offset-difference coding process of claim 7 further comprising means for calculating the predetermined second threshold.